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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,694	08/30/2005	Mingwei Xiao	8737-029/NP	6138
27572 7590 01/11/2007 HARNES, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER LU, C CAIXIA	
			ART UNIT	PAPER NUMBER
			1713	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/11/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/533,694	Applicant(s) XIAO ET AL.	
	Examiner Caixia Lu	Art Unit 1713	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102/103*

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Adler et al. (DE 42 35 405, the Derwent Abstract is cited for hereinafter).

The instant claims are directed to a catalyst composition comprising a magnesium compound of formula  $(RMgX)_p(MgX_2)_q$  with  $q:p$  in the range of 0 to 1.

Adler teaches the preparation of a Ziegler catalyst by (i) reacting Mg powder with n-butyl chloride (nBuCl) with the molar ratio of nBuCl to Mg of 1.3-1.5 to provide a magnesium complex. Although the Adler does not disclose the structure of magnesium complex, based on the molar ratio of nBuCl to Mg of 1.3-1.5, the reaction would have occurred: first, nBuCl reacts with all of the Mg to provide nBuMgCl; and then the excess amount of nBuCl further reacts with nBuMgCl to provide  $MgCl_2$ . That is, Adler's magnesium complex theoretically has the structure of  $(BuMgCl)(MgCl_2)_{0.3-0.5}$ .

Therefore, one of ordinary skilled in the art would have expected Adler's magnesium complex to inherently meet the limitation of the instant claims.

Once a product appearing to be substantially identical is found and a 35 USC 102/103 rejection made, the burden of proof is shifted to the applicant to show an unobvious difference. In re Fitzgerald, 205 USPQ 594. In re Fessmann, 180 USPQ

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324. Applicants have not met their burden to demonstrate an unobvious difference between the claimed product and the products of the prior art examples.

***Claim Rejections - 35 USC § 103***

3. Claims 4-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fottinger et al. (US 2005/0075241) in view of Adler et al. (DE 42 35 405, the Derwent Abstract is cited for hereinafter).

Fottinger teaches a process for preparation of Ziegler catalyst comprising A) contacting inorganic metal oxide such as silica with a magnesium compound such as  $MgR_nX_{2-n}$ , B) subsequently brining the magnesium impregnated silica in to contact with a halogenating agent such as n-butyl chloride, and C) bringing the product of step B) into contact with a tetravalent titanium compound, an organoaluminum compound and an optional electron donor (page 1, [0007] to [0018], page 2, [0029]).

It is noted that Fottinger does not expressly teach the magnesium compound  $MgR_nX_{2-n}$  to be  $(RMgX)_p(MgX_2)_q$  with  $q:p$  in the range of greater than 0 to 1. However, such a magnesium compound is taught in Adler as shown above.

Thus, it would have been obvious to a skilled artisan at the time the invention was made to Xiao's  $(RMgX)_p(MgX_2)_q$  to Fottinger's catalyst preparation process to provide a Ziegler catalyst for olefin polymerization since Xiao's  $(RMgX)_p(MgX_2)_q$  is functionally equivalent to Fottinger's  $MgR_nX_{2-n}$  and can be readily prepared and in the absence of any showing criticality and unexpected results.

It is noted that Fottinger's halogenation reaction is conducted prior to the contact with titanium compound and organoaluminum compound. It is understood that the

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function of halogenating step is to convert the nonhalogen group such as alkyl and alkoxide in the catalyst complex to halogen in order to maximize the catalyst activity.

When an OR containing titanium compound is used, halogenation reaction must be conducted to convert OR in the titanium complex to halogen, and when such is done, the teaching of the cited prior art renders the instant claim 16 obvious.

***Response to Arguments***

4. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caixia Lu whose telephone number is (571) 272-1106. The examiner can normally be reached from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful and the matter is urgent, the examiner's supervisor, David Wu, can be reached at (571) 272-1114. The fax numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1700.



Caixia Lu, Ph. D.  
Primary Examiner